REMARKS

Claims 1-37 have been examined, with all claims rejected. Claims 1, 12, 15, 17, 28, 31, and 33 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Mobin et al. (U.S. Patent. No. 6,522,696) in view of Webster et al. (U.S. Patent No. 6,233,273). Claims 11 and 27 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Mobin et al. in view of Webster et al., and further in view of Parr et al. (U.S. Patent No. 5,263,026). Claims 2, 4, 7-9, 18, 20, 23-25, 34, and 36 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Mobin et al. in view of Webster et al., and further in view of Cahill (U.S. Patent No. 5,150,384). Claims 13, 14, 29, 30, and 37 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Mobin et al. in view of Webster et al., and further in view of Toskala et al. (U.S. Patent No. 6,269,126). Claims 2, 3, 18, 19, and 34 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Mobin et al. in view of Webster et al., and further in view of Sato (U.S. Patent No. 5,982,763). Claims 16 and 32 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Mobin et al. in view of Webster et al., and further in view of Cahill and in further view of Kang (U.S. Patent No. 6,198,780). Claims 2, 5, 6, 18, 21, 22, 34, and 35 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Mobin et al. in view of Wright et al. (U.S. Patent No. 5,309,482). Applicant respectfully traverses these rejections for the reasons set forth below.

Claims 1-15, 17-31, and 33:

Independent claim 1 is directed to a receiver for processing time division multiple access (TDMA) signals. The receiver has a sampler (303) for sampling a TDMA signal received from a transmission channel, a derotator (304) for correcting for frequency offset in the sampled TDMA signal, a matched filter (306) for correcting for the response of the transmission channel in the received TDMA signal, an equalizer (307) to which is applied an output signal from the matched filter, a deinterleaver (309) to deinterleave the received TDMA signal, and a channel decoder (310) for decoding the received TDMA signal after it is deinterleaved. Independent claim 17 corresponds with claim 1, except that it is written in "means for" language, and independent claim 33 is a method claim corresponding with claim 1.

Contrary to the Examiner's statement on page 3 of the Office Action, Webster does not suggest the claimed matched filter. Webster's channel match filter (33) in Fig. 10 is not an adaptive filter while the claimed matched filter (306) in Fig. 3 is an adaptive filter. That is, the claimed matched filter adapts its filter characteristics to track changes in channel characteristics, while Webster's channel match filter has predefined fixed filter characteristics. The other applied references fail to make up for Webster's deficiency. Thus, claims 1-15, 17-31, and 33 are patentable over the applied references for at least this reason.

Claims 10 and 26:

Dependent claim 10 recites that the receiver of claim 1 further includes a channel impulse response estimator ("CIR estimator"; 315) for estimating the response of the transmission channel and updating the coefficients of the matched filter. Claim 26, which depends on independent claim 17, corresponds with claim 10, except that it is written in "means for" language.

Contrary to the Examiner's statement on page 4 of the Office Action, Webster does not suggest the claimed CIR estimator. Webster's estimated channel impulse response (107) in Fig. 10 uses the output of codeword synthesizer (106) as its input, and the codeword synthesizer (106) depends on the result of channel response correction (104), codeword correlator (31), and codeword decision (105). On the other hand, the input to claimed CIR estimator 315, which is shown in Fig. 3, is the same as the input signal to the channel matched filter (306). Additionally, Webster's estimated channel impulse response (107) generates an estimated error signal which is directly removed from the output of channel matched filter (33), while CIR estimator (315) of the application generates a set of coefficients for the adaptive channel matched filter (316). The other applied references fail to make up for Webster's deficiency. Thus, claims 10 and 26 are further patentable over the applied references for at least this additional reason.

Claims 12 and 28:

Dependent claim 12 recites that the receiver of claim 1 further includes a frequency offset estimator (314) for estimating frequency offset and adjusting the derotator to response to such estimate. Dependent claim 28 corresponds with claim 12, except that it is written in "means for" language.

Contrary to the Examiner's statement on page 3 of the Office Action, Mobin does not suggest the claimed frequency offset estimator. Both Mobin's adaptive automatic frequency correction update tracking (58; Fig. 1A) and the claimed frequency offset estimator (314; Fig. 3) of the present invention are designed for generating a reference signal for the deroration modules (Mobin's AFC rotation sub unit (32) and derotator (304) of the application). However Mobin's circuit is more complex and uses signals from multiple points on the demodulation chain, while the claimed frequency offset estimator (314) simply takes signal at the input of the derotator as its input. The other applied references fail to make up for Mobin's deficiency. Thus, claims 12 and 28 are further patentable over the applied references for at least this additional reason.

Claims 15, 16, 31, and 32:

Dependent claim 15 recites that the receiver of claim 1 further includes a block decoder (311) for decoding an output signal from the channel decoder. Dependent claim 31 corresponds with claim 15, except that it is written in "means for" language.

Independent claim 16 is directed to a receiver for processing time division multiple access (TDMA) signals. The receiver includes an interpolation filter (301) to which the TDMA signals are applied, a pulse shaping matched filter (302) to which is applied an output signal from the interpolation filter, a sample selector (303) to which is applied an output signal from the pulse shaping matched filter, a derotator (304) to which is applied an output signal from the sample selector, a scaler (305) to which is applied an output signal from the derotator, a matched filter (306) to which is supplied an output signal from the scaler, an equalizer (307) to which is applied an

output signal from the matched filter, a deinterleaver (309) to which is applied an output signal from the equalizer, a channel decoder (310) to which is applied an output signal from the deinterleaver, and a block decoder (311) to which is applied an output signal from the channel decoder. Independent claim 32 corresponds with claim 16, except that it is written in "means for" language.

Contrary to the Examiner's statements on pages 4 and 10 of the Office Action, a combination of the cyclic decoder (72) and the speech decoder (74; Fig. 1A) in Mobin is not equivalent to the claimed block decoder (311; Fig. 3). The claimed block decoder 311 in Fig. 3 is for block error correction capable of correcting block errors. Cyclic decoder (72) in Mobin's patent is a circuit only for parity checking and block error detection using, for example, cyclic redundancy code. Combining cyclic decoder (72) and speech decoder (74) will not arrive at a block error correction circuit. The other applied references fail to make up for Mobin's deficiency. Thus, claims 15, 16, 31, and 32 are further patentable over the applied references for at least this additional reason.

With further regarding to claims 16 and 32, contrary to the Examiner's statement on page 11 of the Office Action, Cahill does not suggest the claimed matched filter. Cahill's matched filter (131[1]) is an analog filter implemented before A/D conversion while the claimed pulse shaping matched filter (302) is a digital filter after A/D conversion. The other applied references fail to make up for Cahill's deficiency. Thus, claims 16 and 32 are further patentable over the applied references for at least this additional reason.

New claims 38-64:

Claim 38-64 have been added to further define the invention. Support for these claims may be found, for example, in Figs. 1B, 1C, 2A, 2C, 2D, 2E, 2F, and 4, and in the corresponding descriptive paragraphs. Support for the variable user number and variable data rate may be found, for example, in the multiple hardware kernel planes in the configurable modem processor and the configurable codec processor. No new matter has been added.

[1] The Office Action states reference numeral "52", but it seems the Examiner meant to state reference numeral "131".

In view of the above, Applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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